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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,268	10/22/2001	Mark Kevitt Debe	52955US011	5103

32692 7590 07/11/2008
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EXAMINER	
RUTHKOSKY, MARK	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
07/11/2008	ELECTRONIC

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/014,268
Filing Date: October 22, 2001
Appellant(s): DEBE, MARK KEVITT

Philip Y. Dahl
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/18/2008 appealing from the Office action mailed 11/19/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct. The claims include the term "means." Appellant has not invoked 112, 6th paragraph, which is not ground for rejections or arguments.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

GB 1439440	PEDRICK	6/1976
US 5432710	ISHIMARU	7/1995
US 5009067	SCHEFFLER	4/1991

MONSLER, M. "Glass Microshell Parameters for Safe Economical Storage and Transport of Gaseous Hydrogen" Fuel Cells for Transportation TOPTEC, Alexandria, VA, April 1, 1996.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Pedrick (GB 1,439,440.)

The instant claims are to an apparatus for delivering gas at a controlled rate comprising

a) an article comprising at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand,

b) a means for causing release of said gas from said microbubbles by fracturing, and

c) a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load.

Pedrick (GB 1,439,440) teaches an apparatus for delivering gas at a controlled rate comprising an article with at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand (claims 1-4), a means for causing release of said gas from said microbubbles by fracturing (page 3, col. 1), and a feedback and control means

for releasing gas to an electrochemical power device at a controlled rate determined by a load (page 2, col. 1, lines 35-end; col. 2, line 90-end; page 3, lines 1-20, claims 1-4.) A fracture release mechanism is taught for releasing the fuel. Engines and vehicles are well known to inherently include a throttle that releases fuel in response to the need required by the engine. Thus, the claims are anticipated.

Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monsler et al. (Fuel Cells for Transportation TOPTEC, as submitted by applicant in their disclosure of prior art) in view of Ishimaru et al (US 5,432,710) OR Scheffler et al. (US 5,009,967.)

Monsler et al. teaches an apparatus for delivering gas at a controlled rate comprising an article with at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand, a means for causing release of said gas from said microbubbles by fracturing (pages 4-5.) The reference does not teach a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load. Ishimaru et al (US 5,432,710, see figure 1, the abstract and the claims) and Scheffler et al. (US 5,009,967, see claims 1-4) teach feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load. Various detectors and processors are noted. The controllers supply a fuel to a load in an efficient manner. It would have been obvious to one of ordinary skill in the art at the time the invention was made to a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load in order to supply a fuel to a load in an efficient manner, so as not to

undersupply the load or to oversupply the load and waste fuel not used by the load. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

(10) Response to Arguments

Response to arguments based on the rejection of claims 31-32 under 35 U.S.C. 102(b) as being anticipated by Pedrick (GB 1,439,440.)

Appellant argues that, "Pedrick is a curious reference. Upon examination and reflection, it can be seen that the device disclosed by Pedrick has very little fimctionality, and furthermore, can in no way anticipate the present claims. Pedrick purports to disclose "A reciprocating piston internal combustion engine in which fuel is fed into the space above the piston in an encapsulated form. However, the depicted device is only capable of one rate of fuel consumption and therefore one rate of power output. It is apparent from Fig. 7 and the accompanying description that Pedrick's device must consume exactly one fuel pellet per cycle, no more or less." Appellant concludes that, "The Pedrick device is not capable of adjusting to consume more fuel per cycle in response to an increasing load." Appellant further argues that, for these reasons, the reference does not teach a device that releases gas at a controlled rate determined by a load.

This argument has been considered, but is not persuasive. Pedrick teaches a combustion engine used in automobiles in which encapsulated fuel, such as hydrogen, is fed into space above a piston. The fuel capsule is ruptured by the piston, a member moveable with the piston or pressure in the space above the piston (claim 1.) The fuel capsules are added to the space above the piston at an appropriate rate in relation to the speed of rotation of the engine crank shaft

(claim 2.) From this, it is clear that the gas is releasable on demand. The fuel is fed such that a capsule is exposed each engine stroke (see the paragraphs bridging pages 2-3.) Because the speed of rotation of the engine crank shaft is determined by the operator of the engine or automobile and a capsule is exposed each engine stroke, the device releases gas at a controlled rate determined by the load or user.

Appellant further argues that, "The November 19 Office Action asserts that a throttle could be fitted to Pedrick's device and that such an adaptation is inherent to the teachings of Pedrick. however, fitting a throttle to Pedrick's device is not taught or implied anywhere in Pedrick, and, more importantly, is in fact impossible. A throttle controls the amount of fuel sent to the engine. No such control is possible with the Pedrick device, which, can only operate at a single rate of fuel input and a single rate of power output."

This argument has been considered, but is not persuasive. Pedrick teaches an internal combustion engine that is used in automobiles with hydrogen as a fuel that is equivalent to gasoline or diesel fuels (see at least page 2, col. 2, lines 105-end.) Claim 2 states that fuel capsules are added to the space above the piston at an appropriate rate in relation to the speed of rotation of the engine crank shaft. From this, it is clear that the operator of the vehicle or engine determines the load on the engine and the appropriate amount of fuel necessary to power the engine. A throttle, fuel pedal or inlet valve (page 2, line 115) inherently allows the operator to add fuel to the engine.

Appellant further argues that Pedrick fails to teach or suggest an electrochemical power device as recited in the preset claims. This argument has been considered, but is not persuasive. First, the claim recites an intended use for the apparatus claimed. The apparatus includes a

means for releasing gas such as a fracture release mechanism. Pedrick teaches a fracture release mechanism. The fracture release mechanism is capable of generating hydrogen for an electrochemical device. Further, Pedrick teaches electron transfer to oxygen from the combustion of hydrogen to form water (see page 3, line 47.) It is the same electrochemical reaction used to form water in a fuel cell. Thus, the prior art anticipates the instant claims.

Response to arguments based on the rejection of claims 31-33 under 35 U.S.C. 103(a) as being unpatentable over Monsler et al. (Fuel Cells for Transportation TOPTEC, as submitted by applicant in their disclosure of prior art) in view of Ishimaru et al (US 5,432,710) OR Scheffler et al. (US 5,009,967.)

Appellant argues that, no anticipation and no prima facie case of obviousness have been established because the cited references fail to teach or suggest claim limitations recited in the present claims. Appellant argues that Monsler does not teach the release of hydrogen gas from the microspheres by fracturing. Appellant argues, "Monsler instead teaches, "The hydrogen can be released by heating the microspheres". The Background Art section of the present Specification makes note of such methods: "in bulk hydrogen storage in glass microbubbles, the microbubbles are heated to temperatures on the order of 250 °C or higher to cause release of hydrogen by diffusion through the glass microbubble walls."

This argument has been considered, but is not persuasive. Monsler clearly teaches the release of hydrogen gas from the microspheres by fracturing. The gas microspheres are heated to cause porous fracturing which reads upon the instant claims. The glass becomes porous at 150-200 °C to release hydrogen (see page 12 of Monsler.) The spheres become porous, and thus fractured, at high temperatures. Heating to cause openings in the sphere is a reasonable

interpretation of fracturing. The claims do not require fracturing by a mechanical means of contact. Further, appellant's argument is not supported. The specification discusses bulk hydrogen storage and does not reveal the materials to be the same as those taught in Monsler.

In essence, Appellant argues that the thermal pore forming process that causes the release of hydrogen from the microshells taught of Monsler is not fracturing. This argument is not consistent with Appellant's disclosure or consistent with the dictionary meaning of fracturing. On page 7 of the instant specification, thermal fracturing is taught as a means for fracturing the microspheres of the instant invention. The specification offers no definition of fracturing that requires the irreversible destruction of the microsphere. By forming pores in the microspheres at high temperatures, the materials have small fractures in which hydrogen is released from the microsphere. Lowering the temperature to form a solid, impermeable material is an improvement because it allows for reuse of the microspheres, but this does not take away from the fact the microspheres are fractured at high temperatures.

A dictionary definition of "fracturing" is a separation of continuous parts (see http://dictionary.die.net/fracturing.) Forming pores is clearly a separation of continuous parts that form the microsphere. From this definition, the term fracturing is given a very reasonable interpretation as compared with the teachings of the prior art and appellant's disclosure.

Webster's Revised Unabridged Dictionary (1913)

Fracture \Frac"ture\ (?; 135), v. t. [imp. & p. p. Fractured (#; 135); p. pr. & vb. n.. Fracturing.] [Cf. F. fracturer.] To cause a fracture or fractures in; to break; to burst asunder; to crack; *to separate the continuous parts of*; as, to fracture a bone; to fracture the skull.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Mark Ruthkosky/

Primary Examiner

Art Unit 1795

Conferees:

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